

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville
2960 Foster Creighton Road
Nashville, TN 37204
Tel: 800-765-0980

TestAmerica Job ID: NUJ3527

Client Project/Site: PASUS-Dimock-AMEC-102011
Client Project Description: PASUS - VARIOUS SITES

For:

Cabot Oil
Five Penn Center West, Suite 4101
Pittsburg, PA 1527641

Attn: Phillip Levasseur



Authorized for release by:
11/02/2011 04:47:16 PM

Ryan Fitzwater
Project Manager
Ryan.Fitzwater@testamericainc.com

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Sample Summary

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
NUJ3527-01	Well 1	Water	10/26/11 11:30	10/27/11 08:20

1

2

3

4

5

6

7

8

9

10

11

12

Case Narrative

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Job ID: NUJ3527

Laboratory: TestAmerica Nashville

Narrative

WELL 1	10/26/11	1130	Ex. 6 - Personal Privacy	200.00-1,006.00,000.
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All samples were received in good condition, properly preserved, and properly labeled. All analyses were completed within holding times. There were no relevant protocol specific QC and/or performance standard non-conformances to report with the following exceptions:

The RSK175 Methane recoveries in the matrix spike (-96%) and matrix spike duplicate (-99%) associated with batch 11J6689 are outside QC limits (46-142%) due to sample matrix interference. See blank spike.

Definitions/Glossary

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Qualifiers

Pesticides

Qualifier	Qualifier Description
M8	The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Client Sample ID: Well 1

Lab Sample ID: NUJ3527-01

Date Collected: 10/26/11 11:30

Matrix: Water

Date Received: 10/27/11 08:20

Method: RSK 175 - Methane, Ethane, and Ethene by GC - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	572		5.00		ug/L		10/28/11 10:25	10/28/11 12:17	1.00
Propane	5.12		5.00		ug/L		10/28/11 10:25	10/28/11 12:17	1.00
Isobutane	ND		10.0		ug/L		10/28/11 10:25	10/28/11 12:17	1.00
n-Butane	ND		5.00		ug/L		10/28/11 10:25	10/28/11 12:17	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Acetylene	86		62 - 124	10/28/11 10:25	10/28/11 12:17	1.00

Method: RSK 175 - Methane, Ethane, and Ethene by GC - Dissolved - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	20500		200		ug/L		10/28/11 10:25	10/28/11 12:23	40.0

QC Sample Results

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Method: RSK 175 - Methane, Ethane, and Ethene by GC

Lab Sample ID: 11J6689-BLK1

Matrix: Water

Analysis Batch: U019022

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 11J6689_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.00		ug/L		10/28/11 10:25	10/28/11 11:35	1.00
Ethane	ND		5.00		ug/L		10/28/11 10:25	10/28/11 11:35	1.00
Propane	ND		5.00		ug/L		10/28/11 10:25	10/28/11 11:35	1.00
Isobutane	ND		10.0		ug/L		10/28/11 10:25	10/28/11 11:35	1.00
n-Butane	ND		5.00		ug/L		10/28/11 10:25	10/28/11 11:35	1.00
Surrogate	Blank % Recovery	Blank Qualifier	Limits				Prepared	Analyzed	Dil Fac
Acetylene	111		62 - 124				10/28/11 10:25	10/28/11 11:35	1.00

Lab Sample ID: 11J6689-BS1

Matrix: Water

Analysis Batch: U019022

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 11J6689_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	% Rec. Limits
Methane	273	267		ug/L		98	80 - 120
Ethane	512	496		ug/L		97	80 - 120
Propane	762	715		ug/L		94	80 - 120
Isobutane	993	957		ug/L		96	80 - 120
n-Butane	993	960		ug/L		97	80 - 120
Surrogate	LCS % Recovery	LCS Qualifier	Limits				
Acetylene	88		62 - 124				

Lab Sample ID: 11J6689-MS1

Matrix: Water

Analysis Batch: U019022

Client Sample ID: Matrix Spike

Prep Type: Dissolved

Prep Batch: 11J6689_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	% Rec. Limits
Methane	727		273	466	M8	ug/L		-96	46 - 142
Ethane	ND		512	496		ug/L		97	71 - 120
Propane	ND		762	716		ug/L		94	70 - 130
Isobutane	ND		993	956		ug/L		96	70 - 130
n-Butane	ND		993	958		ug/L		96	70 - 130
Surrogate	Matrix Spike % Recovery	Matrix Spike Qualifier	Limits						
Acetylene	99		62 - 124						

Lab Sample ID: 11J6689-MSD1

Matrix: Water

Analysis Batch: U019022

Client Sample ID: Matrix Spike Duplicate

Prep Type: Dissolved

Prep Batch: 11J6689_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	% Rec. Limits	RPD	Limit
Methane	727		273	456	M8	ug/L		-99	46 - 142	2	33
Ethane	ND		512	480		ug/L		94	71 - 120	3	30
Propane	ND		762	695		ug/L		91	70 - 130	3	30
Isobutane	ND		993	932		ug/L		94	70 - 130	2	30
n-Butane	ND		993	936		ug/L		94	70 - 130	2	30

QC Sample Results

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Method: RSK 175 - Methane, Ethane, and Ethene by GC (Continued)

Lab Sample ID: 11J6689-MSD1

Matrix: Water

Analysis Batch: U019022

Client Sample ID: Matrix Spike Duplicate

Prep Type: Dissolved

Prep Batch: 11J6689_P

Surrogate	Matrix Spike Dup	Matrix Spike Dup	Limits
	% Recovery	Qualifier	
Acetylene	90		62 - 124

QC Association Summary

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Pesticides

Analysis Batch: U019022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
11J6689-BLK1	Method Blank	Dissolved	Water	RSK 175	11J6689_P
11J6689-BS1	Lab Control Sample	Dissolved	Water	RSK 175	11J6689_P
11J6689-MS1	Matrix Spike	Dissolved	Water	RSK 175	11J6689_P
11J6689-MSD1	Matrix Spike Duplicate	Dissolved	Water	RSK 175	11J6689_P
NUJ3527-01	Well 1	Dissolved	Water	RSK 175	11J6689_P
NUJ3527-01 - RE1	Well 1	Dissolved	Water	RSK 175	11J6689_P

Prep Batch: 11J6689_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
11J6689-BLK1	Method Blank	Dissolved	Water	RSK 175/3810	
11J6689-BS1	Lab Control Sample	Dissolved	Water	RSK 175/3810	
11J6689-MS1	Matrix Spike	Dissolved	Water	RSK 175/3810	
11J6689-MSD1	Matrix Spike Duplicate	Dissolved	Water	RSK 175/3810	
NUJ3527-01	Well 1	Dissolved	Water	RSK 175/3810	
NUJ3527-01 - RE1	Well 1	Dissolved	Water	RSK 175/3810	

Lab Chronicle

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Client Sample ID: Well 1

Date Collected: 10/26/11 11:30

Date Received: 10/27/11 08:20

Lab Sample ID: NUJ3527-01

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	RSK 175/3810		1.00	11J6689_P	10/28/11 10:25	JLS2	TAL NSH
Dissolved	Analysis	RSK 175		1.00	U019022	10/28/11 12:17	JLS2	TAL NSH
Dissolved	Prep	RSK 175/3810	RE1	1.00	11J6689_P	10/28/11 10:25	JLS2	TAL NSH
Dissolved	Analysis	RSK 175	RE1	40.0	U019022	10/28/11 12:23	JLS2	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Method Summary

Client: Cabot Oil

TestAmerica Job ID: NUJ3527

Project/Site: PASUS-Dimock-AMEC-102011

Method	Method Description	Protocol	Laboratory
RSK 175	Methane, Ethane, and Ethene by GC		TAL NSH

Protocol References:

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Certification Summary

Client: Cabot Oil
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3527

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Nashville		ACIL		393
TestAmerica Nashville	A2LA	ISO/IEC 17025		0453.07
TestAmerica Nashville	A2LA	WY UST		453.07
TestAmerica Nashville	AIHA - LAP	IHLAP		100790
TestAmerica Nashville	Alabama	State Program	4	41150
TestAmerica Nashville	Alaska	Alaska UST	10	UST-087
TestAmerica Nashville	Arizona	State Program	9	AZ0473
TestAmerica Nashville	Arkansas	State Program	6	88-0737
TestAmerica Nashville	CALA	CALA		3744
TestAmerica Nashville	California	NELAC	9	1168CA
TestAmerica Nashville	Colorado	State Program	8	N/A
TestAmerica Nashville	Connecticut	State Program	1	PH-0220
TestAmerica Nashville	Florida	NELAC	4	E87358
TestAmerica Nashville	Illinois	NELAC	5	200010
TestAmerica Nashville	Iowa	State Program	7	131
TestAmerica Nashville	Kansas	NELAC	7	E-10229
TestAmerica Nashville	Kentucky	Kentucky UST	4	19
TestAmerica Nashville	Kentucky	State Program	4	90038
TestAmerica Nashville	Louisiana	NELAC	6	30613
TestAmerica Nashville	Louisiana	NELAC	6	LA100011
TestAmerica Nashville	Maryland	State Program	3	316
TestAmerica Nashville	Massachusetts	State Program	1	M-TN032
TestAmerica Nashville	Minnesota	NELAC	5	047-999-345
TestAmerica Nashville	Mississippi	State Program	4	N/A
TestAmerica Nashville	Montana	MT DEQ UST	8	NA
TestAmerica Nashville	New Hampshire	NELAC	1	2963
TestAmerica Nashville	New Jersey	NELAC	2	TN965
TestAmerica Nashville	New York	NELAC	2	11342
TestAmerica Nashville	North Carolina	North Carolina DENR	4	387
TestAmerica Nashville	North Dakota	State Program	8	R-146
TestAmerica Nashville	Ohio	OVAP	5	CL0033
TestAmerica Nashville	Oklahoma	State Program	6	9412
TestAmerica Nashville	Oregon	NELAC	10	TN200001
TestAmerica Nashville	Pennsylvania	NELAC	3	68-00585
TestAmerica Nashville	Rhode Island	State Program	1	LAO00268
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	Tennessee	State Program	4	2008
TestAmerica Nashville	Texas	NELAC	6	T104704077-09-TX
TestAmerica Nashville	USDA	USDA		S-48469
TestAmerica Nashville	Utah	NELAC	8	TAN
TestAmerica Nashville	Virginia	NELAC Secondary AB	3	460152
TestAmerica Nashville	Virginia	State Program	3	00323
TestAmerica Nashville	Washington	State Program	10	C789
TestAmerica Nashville	West Virginia	West Virginia DEP	3	219

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

COOLER RECEIPT



NUJ3527

Cooler Received/Opened On 10/27/2011 @ 08:20

1. Tracking # 3934 (last 4 digits, FedEx)

Courier: FEDEX IR Gun ID 95610068

2. Temperature of rep. sample or temp blank when opened: 2-0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES ☒ NO ☒ NA

4. Were custody seals on outside of cooler? YES ☒ NO ☒ NA

If yes, how many and where: 1-Front

5. Were the seals intact, signed, and dated correctly? YES ☒ NO ☒ NA

6. Were custody papers inside cooler? YES ☒ NO ☒ NA

I certify that I opened the cooler and answered questions 1-6 (initial) P.H.

7. Were custody seals on containers: YES ☒ NO ☒ and Intact YES ☒ NO ☒ NA

Were these signed and dated correctly? YES ☒ NO ☒ NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES ☒ NO ☒ NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES ☒ NO ☒ NA

12. Did all container labels and tags agree with custody papers? YES ☒ NO ☒ NA

13a. Were VOA vials received? YES ☒ NO ☒ NA

b. Was there any observable headspace present in any VOA vial? YES ☒ NO ☒ NA

14. Was there a Trip Blank in this cooler? YES ☒ NO ☒ NA If multiple coolers, sequence # 10

I certify that I unloaded the cooler and answered questions 7-14 (initial) F

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES ☒ NO ☒ NA

b. Did the bottle labels indicate that the correct preservatives were used YES ☒ NO ☒ NA

16. Was residual chlorine present? YES ☒ NO ☒ NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) F

17. Were custody papers properly filled out (ink, signed, etc)? YES ☒ NO ☒ NA

18. Did you sign the custody papers in the appropriate place? YES ☒ NO ☒ NA

19. Were correct containers used for the analysis requested? YES ☒ NO ☒ NA

20. Was sufficient amount of sample sent in each container? YES ☒ NO ☒ NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) F

I certify that I attached a label with the unique LIMS number to each container (initial) F

21. Were there Non-Conformance issues at login? YES ☒ NO ☒ Was a PIPE generated? YES ☒ NO ☒ #

Chain of Custody Record

TestAmerica¹

11/03/2011

DI M0067157

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I.IV. 50. VI

TestAmerica Laboratory location: Pittsburgh --- 301 Alpha Drive / Pittsburgh, PA 15238 / 412-963-7058

Client Contact		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input checked="" type="checkbox"/> Other										TestAmerica Laboratories, Inc.															
Company Name: Cabot Oil & Gas Corporation		Client Project Manager: Phillip Levasseur				Site Contact: Chris Husted				Lab Contact: Ryan Hall / Ryan Fitzwater				COC No:													
Address: 5 Penn Center West		Telephone: 412-249-3921				Telephone: 610-828-8100				Telephone: 412-352-3836 / 615-301-5757				1 of 1 COCs													
City/State/Zip: Pittsburgh, PA 15276		Email: phillip.levasseur@cabotog.com				Analysis Turnaround Time				Analyses				For lab use only													
Phone: 412-249-3921		Method of Shipment/Carrier: FedEx				TAT if different from below <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day				Filtered Sample (Y / N) Composite=C / Grab=G				Walk-in client Lab sampling Job/SDG No:													
Project Name (PAD): PASUS-Dimock-Amec-102011																											
TAX MAP ID: 200.00-1,006.00,000																											
PO #		Shipping/Tracking No: 8769 0236 3934																									
Sample Identification		Sample Date		Sample Time		Matrix					Containers & Preservatives					Sample Specific Notes / Special Instructions:											
						Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	200.8 Metals & 245.1 Mercury	1664A HEM, Oil & Grease	8015B Ethylene Glycols	8260B, Voas BTEX Plus (TCE)	MBAS	RSK 175 Methane, Ethane & Propan	Cl, SO4, Bromide ALK, TDS, TSS, Turbidity, Nitrate and Hardness	Sulfide		
Well 1		10/26/11		1130			x						x					N	G				3				